



Calm, Collected, and I/I Compliant With a Little Help from Digital Technology

Taylors Fire and Sewer District, South Carolina

By Mary Shafer, Staff Writer for Creative Raven, Marketing Consultant

Taylors Fire and Sewer District in Taylors, South Carolina, is party to an agreement with Renewable Water Resources (ReWa), which owns and operates several wastewater treatment facilities in their five-county service area. Ten years ago, Taylors learned this agreement required them to eliminate inflow and infiltration (I/I) into their wastewater collection system within 15 years, giving them a completion deadline of 2021.

This municipal sub district serves about 10,000 parcels in central Greenville County, and is responsible for a wastewater collection system that includes nearly 130 miles of gravity line and 3,602 manholes.

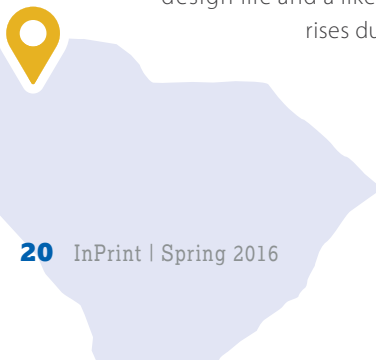
Taylors' service territory is divided into 10 mini-districts. One of those, Mill Hill, "was our main problem area," says Samantha Bartow, director of sewer services. Her department knew its circa-1920s infrastructure was seriously past its design life and a likely culprit in tremendous flow rises during heavy rain.

"Everything at that point was just guessing," she recalled. Taylors had nine required in-line flow monitors and some spotty legacy analog inspection records. Otherwise, Bartow's staff realized, they had no substantial empirical data about their system's problem spots. "Until we did post-work monitoring, we didn't know the actual I/I Mill Hill was responsible for, but we knew it was substantial."

Gearing Up

Bartow's team knew "just guessing" wouldn't get them compliant; they'd need to inspect their entire system, identify problem areas, then plan, schedule, and budget for rehabilitation. They began monitoring with flow meters in 2006, when the I/I reduction order came down. They quickly estimated how long initial CCTV inspections would take, and started them immediately.

However, ReWa wouldn't pay for the extensive project. Instead, Taylors got a \$2 million state revolving fund loan to subcontract CIPP repairs and pipe replacement, but all in-house cleaning, inspection, and preparatory work was going to be labor-intensive and costly. They realized one way to keep costs as low as possible would be to switch to all-digital CCTV inspection systems.



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Samantha Bartow, Director of Sewer Services

This would allow them to:

- realize economies of scale when all units could connect and share data
- decrease the significant man hours required by clunky analog systems
- eliminate errors introduced into analog data through less accurate analysis and reporting processes

Operations coordinator William “Red” Ables said of the pre-digital era, “Every time we’d find something [during a CCTV inspection], we’d have all the issues written on separate sheets of paper. [To find something], we’d hunt through folders by line and segment numbers for still photos, then lay them all out and try to figure out which was which.” Going all-digital was a no-brainer, but it meant significant changes to existing equipment.

Integrated Technology

In 2008, Taylors made their first move toward digital, replacing an old Pearpoint rig with a Ford F450, outfitted with a Cues K2 Base Station, TV reels, and software from the old truck: Pipelogix Inc.’s Flexidata, its Digital Video Survey (DVS) module, the existing GIS package, and the Windows 7 OS. In 2010, Flexidata was re-branded as Pipelogix, and Taylors bought their ESRI GIS software module.

Onboard inspection software now includes Pipelogix with Lateral Module, and the Cityworks/ArcGIS CMMS integrated digital utilities management package has replaced the old MS Access database-generated hardcopy orders. “Our crew uses Cityworks to locate assets, manage workflow, and prioritize repairs,” Bartow said.

Taylors quickly realized it would be beneficial to port the Pipelogix information directly to Cityworks, allowing upper management to review work orders and work-to-date, while

analyzing completed work. “It also allows us to have all the information about our CCTV Inspections in one place,” Bartow said.

Despite a hiccup requiring workarounds to integrate Pipelogix and Cityworks properly until Taylors can upgrade to the latest Cityworks version, Bartow’s team has found both packages to be indispensable. “Pipelogix and Cityworks combined to help us locate areas of inflow and infiltration, where we would need [to] place a flow monitor, or have our construction crew make repairs. This has been a tremendous help.”

Pipelogix software also enables compliance with their new 811 Safety Hotline program, which requires property owners to call in before they dig, to avoid striking underground utilities. The sub district processes more than 200 of these work tickets monthly.

Bartow said Pipelogix allows crews to make quick work of showing property owners where to avoid digging. “Without Pipelogix, we’d have to do everything from the surface. We’d have to have a crew dedicated just to that, which would be tremendously expensive. One sub district quoted a minimum of \$100,000 to do this.”

Along with upgraded equipment, the new software allows Taylors to focus CCTV inspection and reporting efforts where they are most effective for I/I reduction. The efficiency has paid off, allowing them to exceed their annual goal of inspecting at least eight miles of line annually.

The project is ahead of schedule and on track to be completed by 2020, a year earlier than anticipated. The investment in digital, integrated technology has proven itself a greater boon than expected. 📍

